

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

**(PCT Article 36 and Rule 70)**

|   |  |  |
|---|--|--|
| Applicant's or agent's file reference<br><b>0000054234</b>  | <b>FOR FURTHER ACTION</b>  | See Form PCT/IPEA/416  |
| International application No.<br><b>PCT/EP2004/000120</b>   | International filing date ( <i>day/month/year</i> )<br><b>10.01.2004</b> | Priority date ( <i>day/month/year</i> )<br><b>20.01.2003</b> |
| International Patent Classification (IPC) or national classification and IPC<br><b>C08G 65/20</b> |  |  |
| Applicant<br><b>BASF AKTIENGESELLSCHAFT</b>   |  |  |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

a. ☒ (sent to the applicant and to the International Bureau) a total of 1 sheets, as follows:

☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

|                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application   |

|  |   |
|--|---|
| Date of submission of the demand<br><b>08-06-2004</b>                      | Date of completion of this report<br><b>01-10-2004</b>  |
| Name and mailing address of the IPEA/<br><br><br><br><br><br>Facsimile No. | Authorized officer<br><br><br><br><br><br>Telephone No. |

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000120

Box No. I

Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-6 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-3 \_\_\_\_\_ received by this Authority on 18.06.2004 with letter
- nos.\* \_\_\_\_\_ received by this Authority on of 16.06.2004
- ☐ the drawings:
- sheets \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☒ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, nos. 4 \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/000120

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |        |     |     |
|-------------------------------|--------|-----|-----|
| Novelty (N)                   | Claims | 1-3 | YES |
|                               | Claims |     | NO  |
| Inventive step (IS)           | Claims | 1-3 | YES |
|                               | Claims |     | NO  |
| Industrial applicability (IA) | Claims | 1-3 | YES |
|                               | Claims |     | NO  |

## 2. Citations and explanations (Rule 70.7)

1. The present report makes reference to the following documents:

D1: WO 00/43124 A (BASF AG; ELLER KARSTEN (DE);  
HESSE MICHAEL (DE); MEIER ANTON (DE); ME)  
27 July 2000 (2000-07-27)  
D2: DE 31 12 065 A (BASF AG)  
7 October 1982 (1982-10-07).

2. D1 discloses a method for the processing of at least partly deactivated THF polymerisation catalysts based on silicates (see page 3, line 29 to page 4, line 9), the polymerisation catalyst being purified by a water vapour treatment at a temperature of, preferably, 80-250 °C and an absolute pressure of, preferably, 0.5 to 40 bar (processing) (see also page 4, lines 19-22).

The processing in D1 concerns silicates (kaolin, montmorillonites, smectites), not hydrogenation catalysts such as nickel, cobalt, iron, ruthenium, palladium, platinum or copper as per claim 1 of the present application.

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

D2 discloses a method for the production of pTHF with a low colour number in the presence of a hydrogenation catalyst such as nickel, cobalt, iron, ruthenium, palladium, platinum or copper. After the reaction, the catalyst is treated in the presence of hydrogen (page 5, §1) at 50°C and 50 bar. D2 does not disclose a treatment with water vapour.

The subject matter of claim 1 and dependent claims 2-3 is novel over documents D1 to D2.

3. The closest prior art is D2. Claim 1 differs from D2 by virtue of the use of hydrogen, instead of water vapour, and of a lower pressure (maximum 50 bar).

Thus, the objective problem is that of preparing a faster and more cost-effective catalyst change.

The solution is a treatment of the hydrogenation catalyst with water vapour as per D1 instead of hydrogen as per D2.

The use of a treatment (water vapour as per D1) which is known, but has been described only in conjunction with silicates (no metallic hydrogenation catalyst) for the purification of catalysts such as nickel, cobalt, iron, ruthenium, palladium, platinum or copper, appears to be

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

inventive since neither D1 nor D2 suggests the use of water vapour for treating metallic hydrogenation catalysts.

The subject matter of claim 1 and dependent claims 2-3 is inventive relative to documents D1 and D2.

The present application satisfies the requirements of PCT Article 33(1) because the subject matter of claim 1 is novel (PCT Article 33(2)) and inventive.